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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/735,697

12/16/2003

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EXAMINER

LAIOS, MARIA J

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/735,697	<b>Applicant(s)</b> CHO, SUNG-JAE	
	<b>Examiner</b> MARIA J. LAIOS	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2008.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20080613</u> .  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 16 April 2008 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-5, 13-17 and 25-29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azema et al (JP 2002-334685) in view of Azema (US 5,705,290 here in after Azema '290).

Azema et al. disclose a secondary battery (1 in Figure 1) that includes a positive electrode plate, a negative electrode plate, and a separator interposed between the positive and negative electrode plates (paragraph 24). Azema et al. disclose a metallic electrically conducting can (1a in Figure 1 and paragraph 24). The can includes a side opening (1d in Figure 1). Azema et al. disclose a cap

assembly including a cap plate (2) and an electrode port (7 in Figure 3). The cap plate is couple to the side opening of the can (1d) and the electrode port (7) is coupled to the cap plate (2) via a gasket (6 in Figure 3). The electrode port (7) is connected to the positive electrode plate (paragraph 36). Azema et al. disclose that the cap assembly has an aperture (2e) in a side portion of the cap plate (2) where a lead plate (4) is pressed into the aperture (2e) of the cap plate (2) adapted to a safety device (4a in Figure 3, as applied to claims 1 and 13).

Azema et al. disclose forming an electrode assembly, with a can arranged to accommodate the electrode assembly (paragraph 24). Azema et al. disclose forming a side opening (1d) in the can (1a in Figure 1). A cap assembly including a cap plate (2) and an electrode port (7) is formed. The cap plate (2) is coupled to the side opening (1d) of the can in Figure 1. Azema et al. disclose forming an aperture (2e) in a side portion of the cap plate (2 in Figure 3). The electrode port (7) is coupled to the cap plate (2 in Figure 3). Azema et al. disclose connection the electrode port 97) to the positive electrode plate (paragraph 36). The lead plate (4) is pressed into the aperture (2e) of the cap plate (5) and the lead plate (4) is connected to the safety device (4a in Figure 2, as applied to claim 25).

Azema et al. fails to disclose that the lead plate is pressfit into the aperture and being tightly attached with out welding.

Azema '290 discloses a battery with a safety device and teaches that the external terminal (1) can be placed into a plate (2) with out welding (Figure 2) by stacking (col. 3 lines 34-35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to fasten the lead of Azema into the plate by pressing without welding such as is taught by Azema '290 because this would save time in producing the cell since the step of welding is not needed.

Azema et al. disclose that the cap plate (2) is made from aluminum (paragraph 25, as applied to claims 2, 14, and 26).

Azema et al. disclose that the lead plate (4) comprises nickel (paragraph 29, as applied to claims 3, 15, and 27).

Azema et al. disclose that the lead plate (4) and the safety device (4a) are connected via a port member (4b or 4c), the port member (4b or 4c) welded to the lead plate (4 in Figure 3 and paragraph 29, as applied to claims 4, 16, and 28).

Azema et al. discloses that the port member (4b or 4c) comprises nickel (paragraph 29, as applied to claims 5, 17, and 29).

4. Claims 7, 9, 12, 19, 21, 24, 31, 33 and 36 rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP 07-169506) in view of Aaltonen et al (US 6,824,917).

Yamashita teaches a battery (1 in Figure 1, which inherently has an electrode assembly including a positive electrode plate, a negative electrode plate, and a separator interposed between the positive and negative electrode

plates. Yamashita teaches that the can (2) is metallic and electrically conducting (paragraph 17) and is adapted to accommodate the electrode assembly and an electrolytic solution in Figure 1. The can (2) has a cavity (2a) in the external bottom surface and has a side opening (near the other end of the case (2), which houses the battery (1)). Yamashita teaches a lead plate (4a or 4b) to be pressed into the cavity (2a) of the can (2) and that the lead plate (4a or 4b) is connected to a safety device (3 in Figure 1, as applied to claims 7 and 19) but fails to teach that welding is not required. Aaltonen et al. discloses a battery system and teaches a recessed portion (120) having the substantially a size and shape to nest the body 130 of safety component (26) in the recessed portion and does not teach welding these pieces together (col. 4 lines 36-40). It would have been obvious to one of ordinary skill in the art at the time of the invention to make the recess portion of Yamashita substantially the size and shape of the lead in order to nest the components together as is taught by Aaltonen thereby preventing the additional step of welding.

Yamashita teaches forming an electrode assembly and forming an electrically conducting can, the can adapted to accommodate the electrode assembly (paragraph 20). Yamashita teaches forming at least on cavity (2a) in the external bottom surface of the can (2). Yamashita teaches forming a cap assembly and coupling the cap assembly to the side opening of the can (paragraph 24). Yamashita teaches pressing a lead plate (4a or 4b) into the

cavity (2a) of the can (2) and connecting the lead plate (4a or 4b) to a safety device (3 in Figure 1, as applied to claim 31).

Yamashita teaches that the lead plate (4a or 4b) comprises nickel (paragraph 18, as applied to claims 9, 21, and 33).

Yamashita teaches a cap plate adapted to be couple to the side opening (1) of the can (2) and an electrode port adapted to be coupled to the cap plate via a gasket adapted to insulate the electrode port from the cap plate. Yamashita teaches that the electrode port is connected to the positive electrode plate (paragraphs 17 and 24, as applied to claims 12, 24, and 36).

5. Claims 6, 18 and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Azema et al. (JP Publication Number 2002-334685) and Azema (US 5,705,290 herein after Azema '290) as applied to claims 1, 14, and 25 above, and further in view of Cho (U.S. Publication Number 2003/0077484 A1)

Azema et al. modified by Azema '290 do not teach that the battery comprises a protecting case arranged between the electrode assembly and the cap assembly.

Cho teaches a protecting case (34 in Figure 3, as applied to claims 6 and 18).

It would have been obvious to one of ordinary skill in the art at the time of the invention to include the protecting case of Cho in the cap assembly of Azema et al. modified by Azema '290. The protecting case is used to insulate the cap assembly from the electrode assembly and prevent a constant conduction

between the two. By including a protection plate in the cap assembly of Azema et al. modified by Azema '290 will ensure that the lead plate is the only point that will conduct the charge of the battery. This also ensures that if there is a problem with the lead, the attached safety device will be able to prevent conduction.

Without this protecting plate, the battery would continue to conduct a charge even when it shouldn't.

6. Claims 8, 10, 11, 20, 22, 23, 32, 34, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamashita (JP Publication Number 07-169506) and Aaltonen et al (US 6,824,917) as applied to claims 7, 19, and 31 above, and further in view of Azema et al. (JP Publication Number 2002-334685).

The disclosures of Yamashita and Aaltonen et al. with regard to claims 7, 19, and 31 have been discussed above and are incorporated herein.

Yamashita modified by Aaltonen et al does not teach that the can is made of aluminum or an aluminum alloy. Yamashita does not teach that the lead plate and safety device are connected via a port member that is resistance welded to the lead plate or that the port member comprises nickel.

Azema et al. teach that the cap plate (2) is made from aluminum (paragraph 24, as applied to claims 8, 20, and 32).

Azema et al. disclose that the lead plate (4) and the safety device (4a) are connected via a port member (4b or 4c), the port member (4b or 4c) welded to the lead plate (4 in Figure 3 and paragraph 29, as applied to claims 10, 22, and 34).



Azema et al. discloses that the port member (4b or 4c) comprises nickel (paragraph 29, as applied to claims 11, 23, and 35).

It would have been obvious to one of ordinary skill in the art at the time of the invention to make the can of Yamashita out of aluminum like the can of Azema et al. The material of the can is a matter of design choice and changing out materials. Both cans are made out of a metallic electrically conductive material. Therefore switching out the steel of Yamashita for the aluminum of Azema et al. is only a matter of material choice and would be obvious to one of ordinary skill in the art.

It would have been obvious to one of ordinary skill in the art at the time of the invention to swap out the lead plate/safety device part of Yamashita for the lead plate connected to the safety device via a port of Azema et al. Both are made up of lead plates comprising nickel and a safety device between two end lead plates. The overall product is similar and would serve the same purpose. The only difference is the way that the safety device is connected to the lead plates, in Azema et al. it is via a port member while in Yamashita they appear to be welded together. Therefore because both of the lead plate/safety device parts are made out of the same material and serve the same function, it would be obvious to one of ordinary skill in the art to swap out one for the other.

***Response to Arguments***

7. Applicant's arguments with respect to the claims have been considered but are moot in view of the new ground(s) of rejection as necessitated by amendment.

8. The references of Azema and Yamashita teach an aperture with the lead contained within these cavities and are welded at one point. Aaltonen et al. and Azema '290 show that components can be placed into the cavities and secured without welding.

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MARIA J. LAIOS whose telephone number is (571)272-9808. The examiner can normally be reached on Monday - Thursday 10 am -7 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Susy Tsang-Foster can be reached on 571-272-1293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1795

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

MJL

/Susy Tsang-Foster/  
Supervisory Patent Examiner, Art Unit 1795